

### Contemporary issues of wheat production in Nigeria: A review

<sup>1</sup>Dambazau, S. A., <sup>2</sup>Jayasree, K. M. and <sup>3</sup>Tajuddeen, A.

<sup>1</sup>Department of Agricultural Economics and Extension, Kano University of Science and Technology, Wudil, Nigeria

<sup>2</sup>Department of Agricultural Extension, Kerala Agricultural University, Thrissur, India

<sup>3</sup>National Examinations Council, Kano State Office, Nigeria

Correspondence contact detail: sahmaddambazau@gmail.com.

**Abstract:** Wheat farming termed as the most difficult area of Nigerian agriculture for the decades. Despite of the policies and schemes put in place to convert the production, but yet to record a fruitful result. A review on the contemporary issues of wheat production in Nigeria was carried out through the secondary data analysis, which involved related research articles, observations, meeting communique, government bulletins, and newspaper reports and the like before arriving at the inference. Four major issues were identified, such as production, marketing, policy and politics and governance. Wheat production is an unsolved issue in Nigeria for almost a century, government efforts seem not enough to move Nigeria out of the “wheat trap”. The problems range from insurgency, lack of funding for regular seed production in order to tackle environmental problems, farmers’ knowledge, limited area under wheat cultivation, and lack of timely input supply to the farmers, and others aggregated the present scenario. The wheat millers and wheat interest nations are controlling the wheat market in the country. The study concluded that, for Nigeria to attain wheat self-sufficiency long term plans are needed and to be implemented in a phase wise manner. For the nation to increase local output, market must be provided for locally produced wheat by urging the millers to take in domestic produce before embarking into imports. Furthermore, to avoid over importation, the import should be allowed based on quota. Looking at the positive result from implementation of the Accelerated wheat production programme (AWPP), a policy that would take care with the wheat crop alone is needed to achieve the desired outcome. If not, it’s difficult for Nigeria to achieve wheat self-sufficiency soon, it will remain a dream.

**Keywords:** Wheat, Production issues, Marketing issues, and Nigeria

#### INTRODUCTION

Wheat is the most important grain worldwide based on grain acreage and is ranked second when it comes to the total production volume (Shahbandeh, 2021). The global amount of wheat produced came around 772 million metric tons. There was an increase of almost ten million tons when compared to the previous marketing year (Shahbandeh, 2021). Wheat farming has been the most complicated area of Nigerian agriculture for the last decades, due to the high temperatures that is not favourable for the crop, low production and many more (Haruna *et al.*, 2017). The country imports significant amounts of food and the country also does not earn significant foreign exchange from agriculture (Oirere, 2019). Nigeria depends on the imported wheat in order to meet the demands of its large growing. However, since the oil shock of last quarter of 2014 up to 2016, wheat farming is attracting policy makers who see Nigeria’s capacity in wheat production to be self-sufficient (KPMG, 2016).

The paper is set to answer the dilemma emanating from failures of past agricultural policies on agriculture especially wheat production in Nigeria over the years. This would be address under the following heading:

- Production issues
- Marketing issues
- Policies issues and
- Politics and governance issues.

#### METHODOLOGY

The article followed a format of a review paper which concentrated on secondary sources that specifically focused on the four identified major issues such as production, marketing, policy, and politics and governance. These were relevant research findings, government reports, meeting communique, newspaper reports etc., which gathered through a thorough search of hard and soft publication.

#### DISCUSSION

**Production issues** - Wheat farming in Nigeria is carried out mostly by small scale farmers who have traditional skills and have limited access to finance and modern technology. Those farmers are using family member or other means of manual labour as the only means for cultivation (Falola *et al.*, 2017). Inadequate funding for research, mechanized farming, modern laboratory facilities and lack of high-quality inputs continue to reduce local production (Proshare, 2018). Low wheat production is one of the major challenges facing Nigeria for decades. Oirere (2019) lamented that, local wheat production remained inadequate. Though, the production remains low at 60,000MT in 2016 (KPMG, 2016; Proshare, 2018). The production is still unchanged (60,000MT) in 2018 (USDA, 2019). According to (Knoema, 2020) reported that, in 2017 the country produced 67,000MT of wheat and still in 2019, wheat production for Nigeria was recorded at 60,000MT.

These revealed that, the wheat production of Nigeria increased from 6,000MT in 1970 to 60,000MT in 2020, which reflects an average annual growing rate of 12.34%. However, the adoption of the newly introduced technology that involves use of machine that ridges and plants at

the same time. The new technology is expected to yield positive result, the techniques had the capability to increase wheat yield per hectare as against what was obtainable using the previous techniques (Ibrahim, 2020).

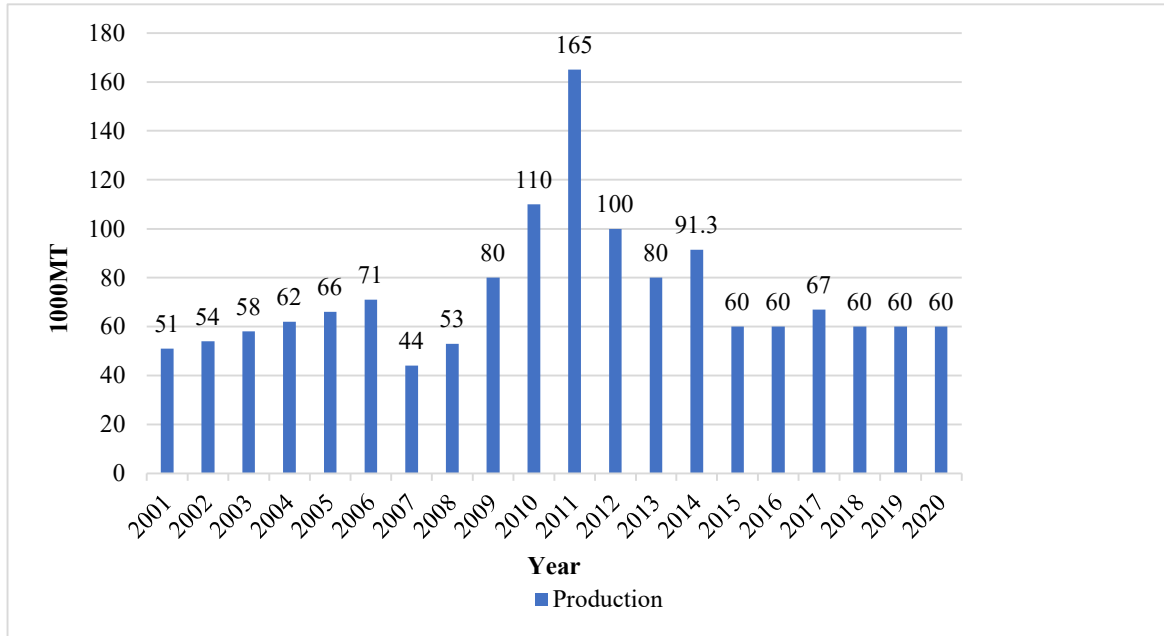


Figure 1 Wheat Production in Nigeria (2000-2020) (Knoema, 2020)

**Low production levels** - The attributable reasons to low production are the available variety grown by farmers, the climatic conditions, cultivation restricted to limited area, and recently the insurgency in most of the areas under wheat cultivation.

The widely available variety in Nigeria is called hard wheat (*Triticum durum*), unlike the winter wheat, it is bred for the tropical climate. It can be grown in most of the northern states due to heat tolerance ability, but the yield is very poor with about 1MT/ha (Knoema, 2019a; USDA 2020). Despite efforts made by the International Maize and Wheat Improvement Center and International Centre for Agricultural Research in the Dry Areas in collaboration with Lake Chad Research Institute that came up with the two high yielding varieties: Norman Borlaug and Reyna -28 which have potential yields of 5 to 6 metric tons per hectare (KMPG, 2016; Richard, 2019). The available wheat seeds with farmers have been planted and replanted for over five years leading to deterioration in crop quality (Proshare, 2018). According to Ime (2020), the heat-tolerant spring wheat genotypes that could tolerate high temperature regimes were developed and released to farmers.

The climatic potential for wheat production generally decreases equator-wards due to

consistently high temperature and humidity (Oche, 1998). The local wheat production in the country remains unchanged due to unfavourable climate, wheat originally adapted to temperate climates and high-altitude regions which the country does not support generally (Haruna *et al.*, 2017). Due to this reason massive production has become difficult and with very low output per hectare. Temperature is most critical at tillering and grain filling stage, when one-degree rise in temperature could reduce wheat yield by four per cent (Ime, 2020). Low yields are attributable to poor soil quality combined with limitations in suitable production areas (USDA, 2019). Another finding opposes the above statement, when reported that, wheat is grown in the northeast region where the night temperatures range between 15-20 degrees Celsius (°C), which makes the land good for massive hard wheat production (Proshare, 2018).

Currently, Nigeria has up to 650,000 hectares of land available for wheat production but not up to 85,000 hectares are being put under productive use (Richard, 2019). Nigeria farmers put 100 hectares under productive use only in 2011 when the production jumped up to 165,100MT. This proved that when more area is put under cultivation the production will significantly appreciate.

According to Lake Chad Research Institute (LCRI) (2017) wheat growers in Northeast Nigeria

have abandoned their farms under the onslaught of the Boko Haram insurgency, wheat production in the zone has declined to 20 per cent of what it used to be. Donley (2018) reported that, insurgency continues to limit access to farmland in Nigeria's main wheat production areas such as Borno and Yobe by displacing farmers, and it forced most of the farmers to remain at Internally Displaced People (IDP) camp across the country. According to LCRI reported by Odum (2015), Boko Haram group is holding sway in the entire Lake Chad basin, causing the last harvest of 2012 from about 5,000 hectares not to be garnered. It was abandoned as farmers fled for safety and till date, not much progress has been made. The number of practical farmers especially in the wheat producing areas has been drastically reduced due this situation.

**Marketing issues** - Nigeria is a massive market for wheat flour served by some of the world's biggest flour milling companies (KMPG, 2016). Nigeria's wheat milling industry, which has a capacity of 8 million tonnes, is highly concentrated, with five major players accounting for around 85% of market production. Recent developments in the sector include Crown Flour Mills' acquisition of Dangote Flour Mills, for \$120 million in October 2019. The deal was 100% equity meaning Crown Flour Mills acquires Dangote's flour, pasta & transport business, doubling the size of its operations with five additional factories. Crown Flour Mills is a subsidiary of Olam, and the deal represents the Singaporean firm's second acquisition in the market in under four years, having purchased BUA's pasta and flour businesses in 2016 (Asoko-Insight, 2020). This proved the conclusion of Andrae and Beckman (1985) that said, foreign millers would acquire the milling companies of the local businessmen who independently enter the milling sector.

**Importation** - According to Andrae and Beckman (1985) the term "entrenchment" is used to

characterise the process whereby the dependence on imported wheat becomes built into the structure of Nigerian society in a manner which makes difficult for disengagement. Local wheat production has not kept pace with demand. Figure 1 shows, the average local production stood at 61,400MT from 2015-2019, while the average demand stood at 4.7364MMT. There is a deficit of 4.675MMT in which importation remain the only alternative to look for the balance. Despite Nigerian millers' preference for imported wheat, the government planned to reduce wheat imports by 50 per cent. In order to get the desired result, the government required millers to purchase local wheat at a fixed price of \$400 per metric ton (Donley, 2018; USDA, 2019). The average production cost of wheat hovers at roughly \$420 per metric ton (USDA, 2018). At the same time, one metric ton of Nigerian wheat in the neighbouring countries (i.e., Niger, Chad, Mali, and Burkina Faso) commands prices of around \$600 per metric ton (KMPG, 2016). The Nigerian government, along with humanitarian relief organizations, and non-governmental organizations routinely purchase local wheat at roughly \$500/MT, paying a \$100/MT premium. This wheat goes to Nigerians (living in camps) displaced by the Boko Haram insurgency. Wheat farmers are refusing to sell at the mandated \$400/MT rate to millers, preferring to sell to the institutional buyers and or export at premium rates (USDA, 2019).

Table 1 shows the wheat importation quantity in Nigeria from 2010 to 2021. The table shows within eleven years Nigeria experienced an average increased wheat import of 2.7%. According to USDA (2019), the increase to an uptick in imports was because of the increase in food, seed and industrial (FSI) usage. The increase in FSI was attributed to the increases in consumption of wheat and wheat products.

Table 1: Wheat import quantity (2010-2020)

Market Year	Imports	Unit of Measure (MT)	Growth Rate (%)
2010	4052	1000	1.55
2011	3901	1000	-3.73
2012	4168	1000	6.84
2013	4580	1000	9.88
2014	4244	1000	-7.34
2015	4410	1000	3.91
2016	4972	1000	12.74
2017	5162	1000	3.82
2018	4585	1000	-11.18
2019	5100	1000	11.23
2020	5249	1000	2.92
2021 (expected)	4900	1000	-6.65

**Consumption** - Nigeria is the second largest consumer of wheat in sub-Saharan Africa behind

South Africa. Generally, wheat is underestimated given that rice is the main food crop in Nigeria.

However, the taste of the domestic market is changing, and the importance of wheat has grown over the years (Proshare, 2018). Nigeria is experiencing an increase in wheat consumption in recent years, from 2015-2020 there was an average increase in consumption of 4.7%. The rise in wheat

consumption is attributable to population growth of about 2.54 per cent in each year from 2015-2019. USDA (2016) attributed the increase in wheat consumption to higher prices of other major locally grown crops, a situation that has led consumer to seek out wheat as a cheaper grain alternative.

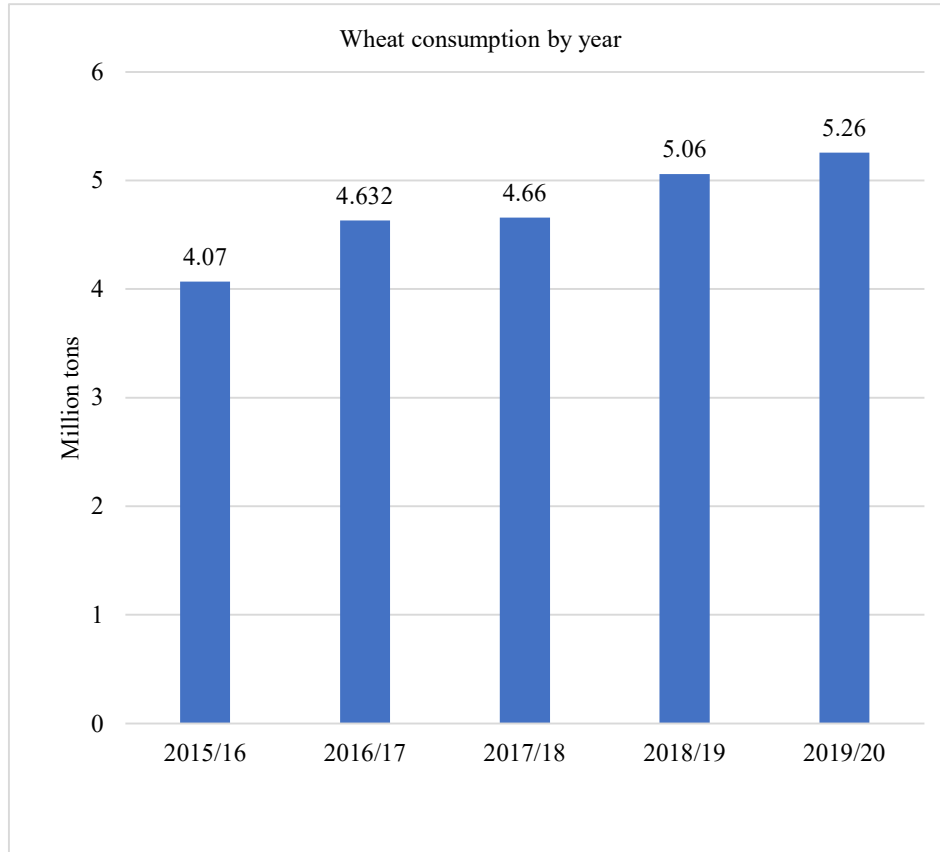


Figure 2: Wheat consumption by year

**Market size** - The capacity of wheat milling companies were estimated at about 8 million tons in 2012/2013, up from 6.6MMT a year earlier, with average capacity utilisation at 50% (E.I., 2015) cited by (KMPG, 2016). The industry is highly competitive, with the top players controlling over 70% of the market, reflecting an oligopolistic market structure. From a deals and investment perspective, the sector is expected to remain vibrant, as industry players implement various

strategies aimed at maintaining competitiveness amidst declining margins.

Flour Mills Nigeria Plc (FMN), the second largest single site mills in the world, is the industry leader in Nigeria, with a combined annual capacity of 3MMT across all its milling facilities; about 40% of the country's total capacity. It also accounts for about half of Nigeria's total annual sector turnover of approximately \$3 billion (Enenche *et al.*, 2014.)

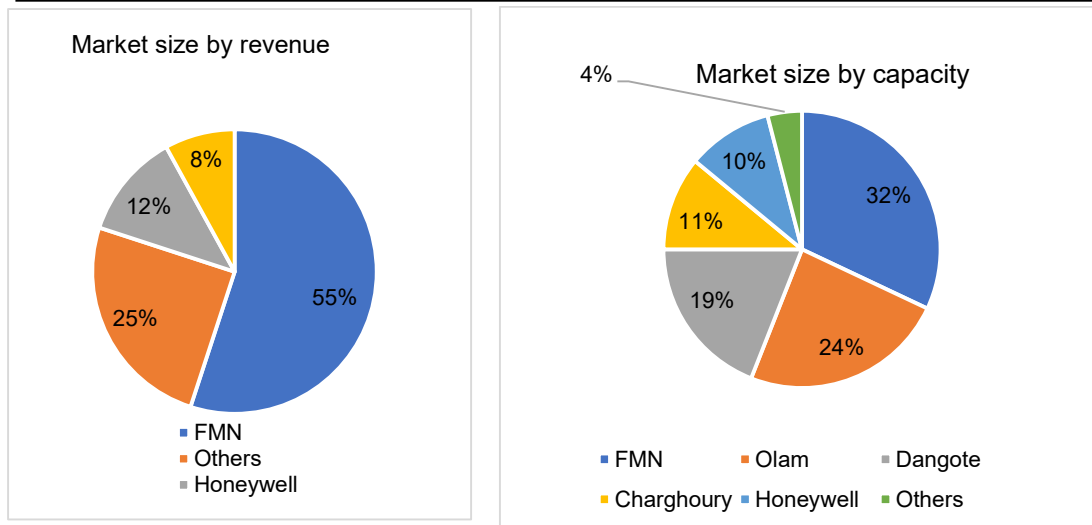


Figure 3: Market size  
Source: Companies' websites and financial statements, KPMG 2016 estimates

The government spends approximately \$7.19B from 2016 to 2020 on wheat importation alone and

is expected to import wheat worth \$2,044B in 2021 (LCRI, 2020).

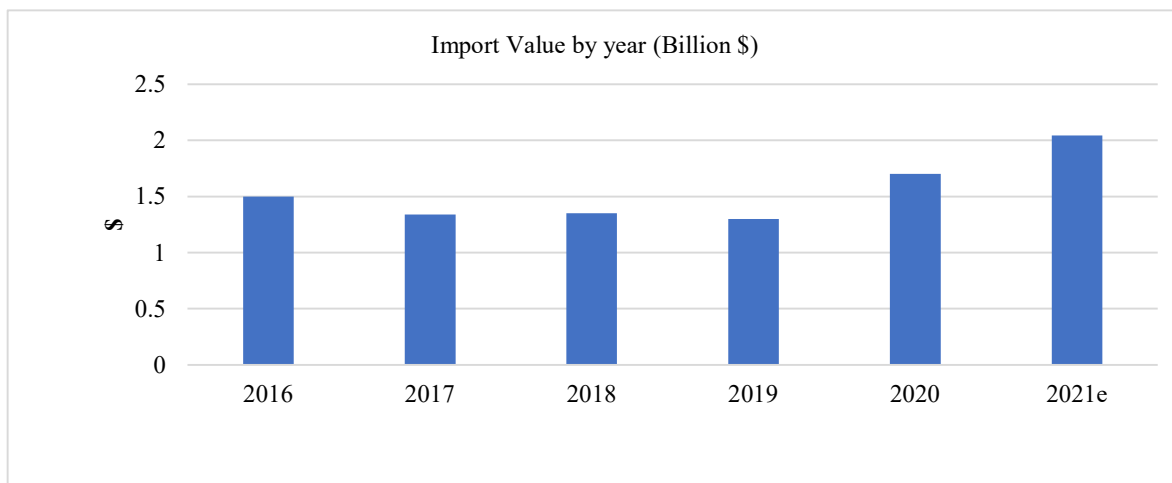


Figure 4: Import Value by year (Billion \$) (USDA, 2020)

**Top trading partners with Nigeria** - Nigeria is one of the top three global markets for U.S. Hard red winter (wheat) with exports averaging 3.0 million tons (USDA, 2013). The market share of U.S. origin wheat was on declining trend for the decade, falling from a high of 80 per cent in marketing year 2012-2013 to a low of 19.1 per cent in marketing year 2017-2018. The drop was due to

increasing competition from cheaper priced wheat imports from other nations. Although Nigeria has sought out cheaper priced wheat in the wake of the economic downturn triggered by the 2014 crash in oil prices and the subsequent foreign currency crisis, local millers have over time become accustomed to improving Russian wheat quality (Richard, 2019).

Table 2: Top trading partners with Nigeria in 2018

Country	Share %	Value (Million US\$)
Russia	37	515
Canada	22	307
USA	19.1	260
Australia	5.96	80
Lithuania	3.1	42
Latvia	2.55	34
Ukraine	1.77	24
Argentina	1.48	20
Poland	1.42	19.3
Germany	1.39	18.9

(USDA, 2019; Workman 2020)

**Policy** - The first and famous policy directed to wheat crop alone was Accelerated Wheat Production Program (AWPP), due to the quantity and cost of importation that drained the country of forex revenue from 1971 to 1981, the government resolved to ban wheat importation. In 1987, the importation of wheat was banned and the AWPP was implemented to encourage local production. Inputs and necessary equipment were provided to farmers at subsidized rates. Nigeria's wheat production rose from 50,000MT to 450,000MT within three years of the program (Magaji *et al.*, 2012). The importation ban was lifted in 1990 and the program ended abruptly, led to an 87% fall in production to 60,000MT in 1991.

In 2011, the government initiated the Agriculture Transformation Agenda (ATA) with aims to increase significantly, the production of five key crops (rice, cassava, sorghum, cocoa and cotton) and reduce food imports (USDA 2013). Wheat was excluded, may be due to the long-term misapprehension that Nigeria's climatic condition would not favour commercial wheat production (Akinwummi, 2014) cited by (Haruna *et al.*, 2017)

In 2012, the government introduced a 15 per cent levy on imported wheat grains thereby raising the total tariff from 5 to 20 per cent in 2012-2013. The government also announced cassava inclusion requirement in wheat flour. The policy mandate cassava flour inclusion in wheat flour, starting with a 10 per cent cassava flour inclusion rate, to increase steadily to 40 per cent by 2015 (KMPG, 2016; USDA, 2016). Some fiscal incentives, such as duty-free import of related equipment and machinery, were also introduced.

In 2013, government committed to increase local wheat production from 70,000MT to 1.5MMT in 2017 under ATA by initiating Wheat Transformation Agenda (WTA) (KMPG, 2016; Haruna *et al.*, 2017). Under this program two high-yielding improved wheat varieties have been released. In addition, farmers were provided with subsidies, credit facilities and inputs such as fertilizers, tractors and implements. The implementation of this program was mainly

through the Growth Enhancement Support Scheme (GESS) (KMPG, 2016)

The GESS initiated in 2013, aims to support resource constrained farmers by providing various incentives required to improve productivity, household food security and income for the farmers. The scheme provides access to agricultural inputs, especially fertilizers to farmers across the country.

In November 2015, The Central Bank of Nigeria (CBN) in line with its developmental function established the Anchor Borrowers' Programme (ABP). The Programme which was intended to create a linkage between anchor companies involved in the processing and Small Holder Farmers (SHFs) of the required key agricultural commodities. The programme thrust of the ABP is provision of farm inputs in kind and cash (for farm labour) to small holder farmers to boost production of these commodities, stabilize inputs supply to agro processors and address the country's negative balance of payments on food (CBN, 2016).

In 2016, a new policy was initiated, the Agricultural Promotion Policy (APP). APP was to address two key gaps in agriculture, including "an inability to meet domestic food requirements, and an inability to export at quality levels required for market success." (Haruna *et al.*, 2017; Odunze, 2019). Nigeria's Ministry of Agriculture has listed wheat among the pool of crops the government plans to expand area under production and improve production methods in partnership with the private sector. (Donley, 2018)

**Politics and governance issues** - In this context we looked at the role that each actor plays to either support or sabotage the initiated policy, and also looked at the commitment made by the government in order to achieve the policy objectives.

Three major actors were identified. These are, the government officials, the wheat millers, and the wheat interest nations

**The government official** - In 1982 Nigeria made a giant step towards improving her local wheat production from oil surplus finances, by provision of dams and establishment of river basins, for

irrigation and extensive growing of wheat, since poor water supply and lack of irrigation facilities were part of the identified problems. This gave birth to Kano River, Bakolori, and Southern Chad irrigation facilities (Rislanudeen, 1991) cited by (Haruna *et al.*, 2017). Wheat importation was banned in 1986 and AWPP was initiated and implemented up to 1990. Kolawole (1989) spelt out the under-performance of the South Chad Irrigation Project, which appears to be the country's hope for self-sufficiency in wheat production and also about capacity under-utilisation of the Bakolori Irrigation Project. According to Kolawole (1993), the large-scale wheat production schemes would seem to have performed below the expectation due to their failure to seriously address the enquiries of popular participation in project design and the development of appropriate technology. The planners have also not adequately acknowledged both the wisdom and complexities of the indigenous agricultural systems and the need to integrate such into the modern agricultural development strategies.

Government's efforts and intervention also came in form of research grants to research institutes to evolve better inputs, and to educate the wheat farmers on best practices, for growing wheat to avert issue of poor seed variety and agricultural practices (Proshare, 2018). In another effort to achieve WTA objectives, Norman Borlaug and Reyna-28 that have potential increase in yield have been distributed to farmers. Some fiscal incentives, such as duty-free import of related equipment and machinery were also given (KMPG, 2016). In order to prove lack of synergy among the government agencies, during political lurching of ABP, it was believed that, the country food coordinating minister was, at the time, yet to understand what the CBN was doing in Kebbi (being barely two weeks old in office). Even at the program, it was more of the CBN and the President representing the funding. The agriculture ministry got wind of the event just days away from the official unveiling at Birnin Kebbi. While, the Bank does not procure seed, it has no extension service in the scale of the ministry and no farmer-database, wondering why the federal institutions were not on the same page (Odum, 2015).

Lack of policy framework to mandate agricultural research institutes to ensure consistent supply of high yielding varieties of modified seeds to farmers has been identified as the major concern militating against massive production of wheat across the country (Richard, 2019). Another finding revealed that, for a very long time, wheat farmers have been complaining that they were left with no intervention, aside from what is being provided by LCRI, an organization that has the mandate on wheat. The ABP policy clearly stated wheat as a main target crop, but it will take time before the wheat farmers are enrolled. Even with

that, late disbursement has been our major issue which led to miss out the planting calendar that must be adhered to (Ibrahim, 2020).

In terms of the baking quality, the Federal Institute of Industrial Research, Lagos has carried out tests that are clearly against the miller's statement in terms of baking quality of wheat grown in Nigeria. According to the test results, bread from Nigerian wheat scaled consumer acceptability parameters (Richard, 2019). The government initiated Presidential committee on Rice and Wheat to facilitate its program on self-sufficiency in food production. The committee's terms of reference include "identifying all that we need to do in order to make Nigeria self-sufficient in rice and wheat production". And find out means of stepping up the current efforts to produce both commodities in Nigeria for local consumption and for export (NAN, 2016).

The fertilizer initiative has led to the revitalization of 14 fertilizer blending plants, with a total installed capacity more than 2 million tons annually, thereby supporting many farmers nationwide, according to government records. Furthermore, the government recently announced it is proceeding with the privatization of 20 out of the 23 Strategic Grains Reserve Silos in the country to ensure food security (Oirere, 2019).

There was a time that, the Hadejia Jama'are river basin development authority announced the blocked of Kadawa irrigation site for the dredging of the canals when planting season was about to commence. Many farmers see the move as wrongly timed, as it coincided with planting calendar, and wheat is a timely crop, late planting may lead to total loss of the product, as a result about 60 per cent of the farmers did not plant (Ibrahim, 2020).

The Nigerian state contributes directly to the entrenchment of wheat imports through state-owned flour mills and bakeries, through state credits and extension services to bakers, and by promoting bread consumption in schools and other public institutions (Andrae and Beckman, 1985)

**Wheat millers** - AWPP failed because Nigerian wheat millers were reluctant to patronize locally produced wheat (Magaji *et al.*, 2012).

Many times, wheat millers used to support farmer with inputs, machineries and even supporting research for new varieties (Murtala, 2019; Ibrahim, 2020). The question here is that, why the wheat millers are reluctant to procure local farmers produce despite their interventions that shows their commitment towards boosting local production. The answer is, it may be another strategy employed by millers to divert attention and avert claims from people who see them as saboteurs of every attempt made by government to consider wheat self-sufficiency.

Wheat millers were not complying with 10 per cent to 40 per cent in the future cassava flour

inclusion policy, instability forced this policy into oblivion (Haruna *et al.*, 2017).

During implementation of WTA through GESS, the wheat production is being improved upon on yearly basis in the wheat value chain. The wheat millers still ignore locally produced wheat to the extent that farmers virtually beg people to buy their wheat. Flour millers favours imports, indicating that local wheat has a higher protein content, lower moisture, and lower gluten, citing characteristics not well suited for bread production (USDA, 2019)

In June 2016, the Wheat Farmers Association of Nigeria signed a memorandum of understanding (MOU) with the Flour Millers Association of Nigeria, fixing the minimum price of wheat at N140, 000 (\$430) per tonne (KMPG, 2016). But things have not improved. According to Andrae and Beckman (1985), “there is a close link between the international wheat-trading interests and the companies with a stake in the Nigerian milling industry. They serve as bridgeheads. In the meantime, new flour mills are erected, ostensibly to take care of the output from the wheat growing schemes, while in practice relying totally on imports”.

**Wheat interest nations** - According to Andrae and Beckman (1985), external influences on Nigerian consumption habits have not been lacking throughout history. From the other parts of the world, we have evidence that central capitals, and notably US interests, have sought a variety of means to influence the consumption habits in peripheral cultures to prepare the way for their own products. The 'eat wheat' campaign in South Korea in the late 60s, led by private and public US interests in liaison, is a case in point. Such forces have been operating also in Nigeria (Andrae and Beckman, 1985). Pressure from wheat interests internationally, were among other issues that failed AWPP (Magaji *et al.*, 2012).

Even when import duties were increased from 5% to 15% in 2012 (USDA, 2016) to discourage importation of wheat, external wheat trading interests were ready to offer discounts to douse the effect. Some of the countries had on several occasions lobbied Nigerian Government to drop the importation levy to encourage increased supply and utilisation of surplus capacity, and to foster flour exports to neighbouring countries (Haruna *et al.*, 2017). Thereafter, foreign wheat traders began tying of knots with local importers and wheat millers for consolidation of what may be referred as the “trapping” proper. They frustrated each Government effort directly or indirectly to control or ban wheat importation, out rightly (Magaji *et al.*, 2012).

Nigeria is into a duel with American interests consistently working against Nigeria’s wheat production advances (Odum, 2015). The Nigerian

wheat trade is highly dominated by the USA. Kilby (1965) cited by (Andrae and Beckman, 1985). In 1910, 80 per cent of Nigerian flour imports came from Britain and Germany, while only 20 per cent came from Canada and US. By the mid-30s US traders controlled 98 per cent of all wheat imports. Presently, the U.S. market share has been declining from 91 per cent in 2010/2011 to a low of 27 per cent in 2017/2018 due to the cheaper wheat imported from Russia, Australia, and other wheat export nations (USDA, 2019).

## CONCLUSION

Wheat production becomes an unsolved issue in Nigeria for almost a century, government efforts not being enough to move Nigeria out of the “wheat trap”. It’s evident that, Nigeria would not attain wheat self-sufficiency soon due to variety of issues that seem to be beyond her control. For Nigeria to attain wheat self-sufficiency, long term plans are needed that can be used to solve the problems gradually, ranging from insurgency, funding research for regular seed production in order to tackle environmental problems, gradual increase of area under wheat cultivation, and timely input supply to the farmers. The wheat millers and wheat interest nations are controlling the wheat market in the country. For the nation to increase local output, market must be provided for locally produced wheat by urging the millers to consume what farmers produce before embarking on import. Furthermore, to avoid over importation, import should be allowed based on quota. Looking at the positive result from implementation of AWPP, policy that would take care of wheat crop alone is needed in order to achieve the desired outcome.

## REFERENCES

- Andrae, G. and Beckman, B. 1985. The wheat trap: bread and underdevelopment in Nigeria. ISBN 0-86232-520-X Zed Books Ltd. 57 Caledonian Road, London NI 9B U, in association with the Scandinavian Institute of African Studies, PO Box 1703, S 751 47 Uppsala, Sweden, in 1985
- Asoko-Insight. 2020. Nigeria's Grains Industry. [Online]. Available: <https://asokoinsight.com/content/market-insights/nigeria-grain-industry>. [12. 08. 2020]
- CBN [Central Bank of Nigeria] 2016. Anchor Borrowers’ Programme Guidelines. In: Development Finance Department Central Bank of Nigeria. Available: <https://www.cbn.gov.ng/out/2017/dfd/anchor%20borrowers%20programme%20guidelines%20-dec%20%202016.pdf> [14<sup>th</sup> August, 2020]
- Donley, A. 2018. Wheat imports rising in Nigeria [online]. Available: [19](https://www.world-</a></p>
</div>
<div data-bbox=)



- grain.com/articles/11395-wheat-imports-rising-in-ni. [Access on 16/04/20]
- Eneche, E. A., Ohen, S. B. and Umueze, G. E. 2014. The effect of agricultural credit guarantees scheme fund on production efficiency of rural farmers in Benue state, Nigeria. *Glob. J. of Sci. Frontier Res.: D Agric. and Vet.* 14 (10). 265p
- Falola, A., Achem, B. A., Oloyede, W. O., Olawuyi, G. O. 2017. Determinants of commercial production of wheat in Nigeria: A case study of Bakura local government area, Zamfara state. *Trakia J. Sci.* 4. 397-404. ISSN 1313-3551. Available online at: <http://www.uni-sz.bg>
- Haruna, S. A., Adejumo, B. A., Chukwu, O., and Okolo, C. A. 2017. Getting out of the Nigerian "Wheat Trap": A multi-disciplinary approach. *Int. J. Eng. Res. Tech.* 6. ISSN: 2278-0181. Available: <https://www.ijert.org/research/getting-out-of-the-nigerian-wheat-trap-a-multi-disciplinary-approach-IJERTV6IS070174.pdf>. [13<sup>th</sup> March, 2020]
- Ibrahim, M. G. 2020. Nigeria: Kano may experience wheat shortage this year – Farmers. Daily Trust (Abuja). 15<sup>th</sup> march, 2020. Available: <https://allafrica.com/stories/202003150029.html>. [16/04/20]
- Ime, N. 2020. Wheat production in Nigeria to improve post COVID-19. [Online]. Available: <https://www.von.gov.ng/wheat-production-in-nigeria-to-improve-post-covid-19/> [11<sup>th</sup> August, 2020]
- Knoema.com 2019a. Nigeria Wheat production quantity. [Online]. Available: <https://knoema.com/atlas/Nigeria/topics/Agriculture/Crops-Production-Quantity-tons/Wheat-production>. [09/04/2020]
- Knoema.com 2019b. Nigerian wheat imports quantity, 1960-2019 [online]. Available: <https://knoema.com/atlas/Nigeria/topics/Agriculture/Trade-Import-Qu>. [10<sup>th</sup> May 2020]
- Knoema.com 2021. Nigeria Wheat production quantity. [Online]. Available: <https://knoema.com/atlas/Nigeria/topics/Agriculture/Crops-Production-Quantity-tonnes/Wheat-production>. [15<sup>th</sup> April 2021]
- Kolawole, A. (1989), "Under-performance of Nigerian irrigation systems: Design faults or system mismanagement?" *Intern. J. Water Res. Dev.* 5 (2): 125-135
- Kolawole, A. 1993. Economic analysis of dry lands farming in Nigeria with special reference to the accelerated wheat production programme in Kano and Kaduna states. *African Arid Lands* 3. ISSN 1102-4488.
- Nordiska Afrikainstitutet (The Scandinavian Institute of African Studies) p O Box 1703, S-751 47 Uppsala, Sweden
- KPMG [Klynveld, Peat, Marwick and Goerdeler] 2016. Wheat based consumer foods in Nigeria. [Online]. Available: <https://home.kpmg/ng/en/home/insights/2016/08/wheat-based-consumer-foods-in-nigeria.html>. [02.02.2020]
- LCRI [Lake Chad Research Institute] 2017. Boko Haram Conflict Cuts Nigeria Wheat Crop as Farmers Flee. [Online]. Available: <https://www.agweb.com/article/boko-haram-conflict-cuts-nigeria-wheat-crop-as-farmers-flee-blmg> [11<sup>th</sup> August, 2020]
- Magaji, M. D., Abubakar, B. Y. and Olabanji, O. 2012. Current status of wheat research and production in Nigeria: implication for food security. [Online]. Available: <https://www.slideshare.net/CIMMYT/09-magajiabubakarolabanjicurrent-statusofwheatinnigeria>. [16<sup>th</sup> May, 2020]
- Murtala, A. 2019. Why local wheat production is stunted. The Guardian. 07<sup>th</sup> April, 2019. Available: <https://guardian.ng/features/agro-care/why-local-wheat-production-is-stunted/> [01<sup>st</sup> July, 2020]
- NAN [News Agency of Nigeria] 2016. FG Inaugurates Presidential Committee/Task Force on Rice, Wheat Production. Published on June 8, 2016. [Accessed on 12.05.20] available: <https://www.bellanaija.com/2016/06/fg-inaugurates-presidential-committeetask-force-on-rice-wheat-production/>
- Oche, C. Y. 1998. Agro-climatic Zonation for Wheat Production in savanna Region of Nigeria. *Singapore Journal of Tropical Geography*. Vol. 19, No. 1, 39-50. Available: <https://doi.org/10.1111/j.1467-9493.1998.tb00249.x>
- Odum, F. 2015 Dec. 06. Why Nigeria's wheat production programme is under threat. *Guardian Newspaper*. Available: <https://guardian.ng/features/why-nigerias-wheat-production-programme-is-under-threat/>. [11.05.2020]
- Oduze, D. I. 2019. A review of the Nigerian agricultural promotion policy (2016-2020): Implications for entrepreneurship in the agribusiness sector. *Intern. J. Agric. Policy Res.* 7(3): 70-79. Available: <https://doi.org/10.15739/IJAPR.19.008>. [14<sup>th</sup> August, 2020]
- Oirere, S. 2019. Nigeria seeking grain self-sufficiency [online]. Available: <https://www.world-grain.com/articles/11898-nigeria-seeking-grain-self>. [16 April 2020]

- Proshare Economy. 2018. Improved Wheat Production: An aid to Nigeria's diversification strategy. [Online] Available: <https://www.proshareng.com/news/COMMODITIES/Improved-Wheat-Production-An-Aid-to-Nigeria%E2%80%99s-Diversification-Strategy/39427>. [16<sup>th</sup> April, 2020]
- Richard, P. N. 2019 Jun. 12. Why wheat farming is suffering setback in Nigeria. Kano. Daily Trust (Abuja). Available: <https://www.dailytrust.com.ng/why-wheat-farming-is-suffering-setback-in-nigeria.html>. [16.04.20.]
- Shahbandeh, M. 2021. Wheat - Statistics and Facts. [Online]. Available <https://www.statista.com/topics/1668/wheat/>. [Mar 23, 2021]
- USDA [United States Department of Agriculture] 2013. USDA GAIN: Nigeria Grain and Feed Annual 2012. Available: <http://www.thecropsite.com/reports/?id=415>. [04<sup>th</sup> April, 2020]
- USDA [United States Department of Agriculture] 2016. Grain and feed annual Lagos Nigeria. Available: <https://www.fas.usda.gov/data/nigeria-grain-and-feed-annual-0>. [15<sup>th</sup> April, 2020]
- USDA [United States Department of Agriculture] 2018. Wheat and Rice imports up, with rice still crossing the land border despite restrictions. Available: [https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Update\\_Lagos\\_Nigeria\\_12-6-2018.pdf](https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Update_Lagos_Nigeria_12-6-2018.pdf). [21<sup>st</sup> April, 2020]
- USDA [United States Department of Agriculture] 2019. Nigeria's Imports of Wheat and Rice to Rise. Available: <https://www.fas.usda.gov/data/nigeria-grain-and-feed-annual-3>. [21<sup>st</sup> April, 2020]
- USDA [United States Department of Agriculture] 2020. Grain: World markets and trade. 1p. Available: <https://www.fas.usda.gov/data/grain-world-markets-and-trade>. [1<sup>st</sup> May, 2020]
- USDA [United States Department of Agriculture] 2020. Grain and Feed Update. Available: [https://apps.fas.usda.gov/newga/inapi/api/Report/DownloadReportByFileName?fileName=Grain%20and%20Feed%20Update\\_Lagos\\_Nigeria\\_09-16-2020](https://apps.fas.usda.gov/newga/inapi/api/Report/DownloadReportByFileName?fileName=Grain%20and%20Feed%20Update_Lagos_Nigeria_09-16-2020). [15<sup>th</sup> April, 2021]